# "HAVE YOU HEARD DEP IS LEANING"

## LEAN PRESENTATION TO GREEN TEAM

### HARTFORD, CT
### MAY 21, 2009

STATE OF CONNECTICUT
DEPT. OF ENVIRONMENTAL PROTECTION
79 ELM STREET
HARTFORD, CT 06106

PRESENTER:

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HUMAN RESOURCES

# Agenda

- What is LEAN?

- Value of LEAN

- DEP LEAN Projects

- Acknowledgments/Contacts

# What is LEAN?

- "A process improvement approach and set of methods that seek to eliminate non-value added activities or waste." (ECOS/EPA)

- Originally developed for manufacturing – Adapted to improve office environments

- Customer-focused - Do what they value

- Applying "Constant Gentle Pressure" to improve – Plan-Do-Check-Act

# Value of LEAN to DEP

- Become more efficient – no lowering of environmental requirements

- Staff identify and implement the improvements, not management alone

- Improved efficiency – More time to protect the environment, including addressing *new* environmental challenges

# LEAN at Environmental Agencies

- ECOS and EPA produced two documents on LEAN:
  - "Working Smart for Environmental Protection"
  - "Lean in Government Starter Kit"

- ECOS/EPA documents are available at:
  - www.epa.gov/lean

- Also can look at:
  - http://lean.iowa.gov/index.html

# LEAN Resources at DEP

- Lean Implementation Plan – Where It All Began

  - http://www.ct.gov/insidedep/lib/insidedep/lean/implementationplan.pdf
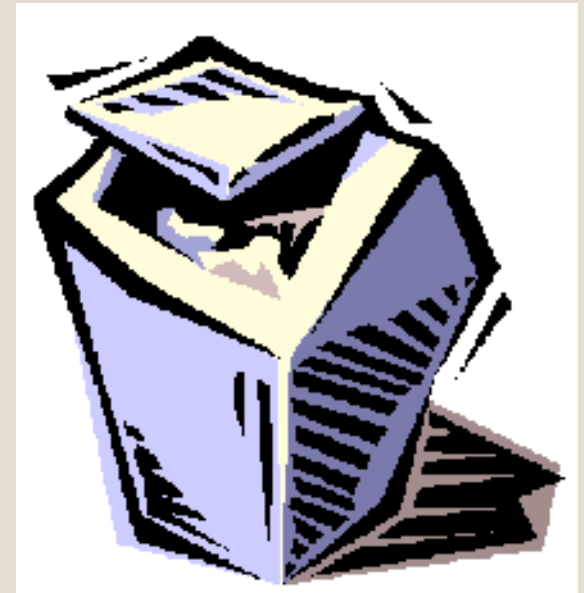
- Lean Initiative Intranet Web Site

  - http://www.ct.gov/insidedep/cwp/view.asp?a=3645&q=429036&insidedepNav_GID=1848

# LEAN Identifies and Eliminates WASTE

- ECOS/EPA have identified several common permitting process wastes, including:

  - Incomplete applications
  - Backlogs
  - Approval bottlenecks
  - Redundant review or data entry
  - Lack of templates

# LEAN Identifies and Eliminates WASTE

| TOMDWIPE | OFFICE EXAMPLES |
| --- | --- |
| Transportation | Poor office layout |
| Overproduction | Printing drafts too soon |
| Motion | Re-entering data |
| Defects | Incomplete paperwork |
| Waiting Time | Meetings start late |
| Inventory | Inbox accumulates |
| Processing | Excessive approvals |
| Environmental waste | Recyclable materials |

# LEAN – 5S Defined

- Sort (dispose of what isn't needed)

- Set in order (organize what remains)

- Shine (clean)

- Standardize (maintain guidelines for the first three S – so they become routine)

- Sustain (develop a steady habit)

# LEAN – 5S

- "5S is often used to ready the workplace for future kaizen events and continual improvement." (Starter Kit)

- Can apply to:
  - office records
  - parks maintenance facilities and hatcheries
  - supply cabinets
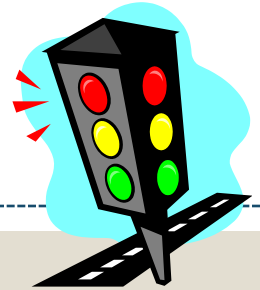  - office cube work space

# LEAN – Visual Controls

- Visual controls share information efficiently.

- Include signals, charts, signs, etc. to:
  - Define expected outcomes
  - Flag challenges to achieving expectations

- Examples:
  - Direction and information signs at parks
  - Colored file folders
  - Large whiteboard listing projects and deadlines

# Visuals - ELUR Scoreboard

Outside ELUR Coordinator's office to track progress/goals
(Whiteboard or Electronic for database reminders)

| Name of Applicant | Date Application Accepted / Rejected | Date Technical Review Began | Date Comment Letter Mailed | Date of Response | Date of Staff Package Assembled | Signature of Bureau Chief | Date C.O.T Returned to DEP |
|---|---|---|---|---|---|---|---|
| Goals (min–max) | 1 – 30 days | 21 days – 90 days | | 7 – 60 days | 7 – 60 days | 2 – 10 days | 3 – 14 days |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

Yellow = Stalled        Green = Moving Along        Red = Needs Help

# LEAN – Kaizen

- "Kaizen event" = "LEAN event"

- "Kaizen" combines two Japanese words that mean "to take apart" and "to make good"

- Kaizen events often involve value stream mapping (VSM)

- VSM develops a visual of the process flow – start to finish – to identify waste

# Lean I - Evaluation of the DEP Air Planning and Standards Division Permit Modeling Program
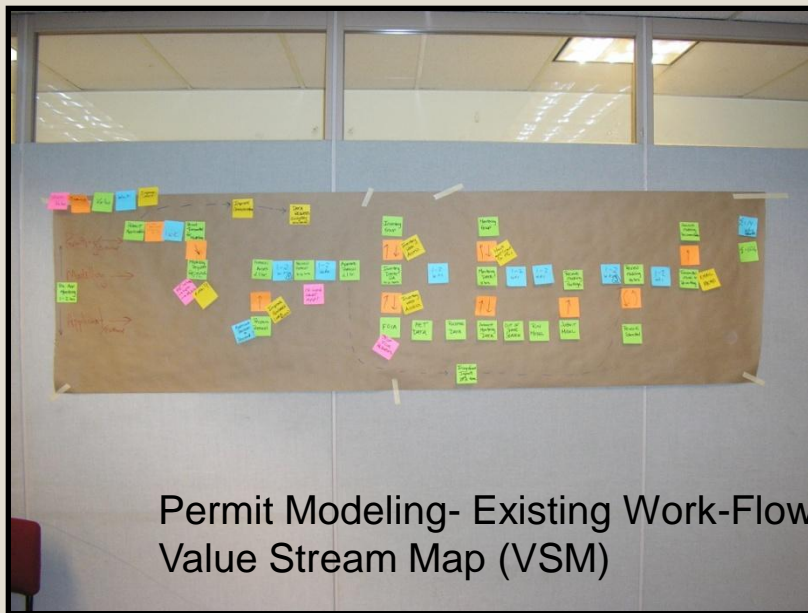


Permit Modeling- Existing Work-Flow Value Stream Map (VSM)
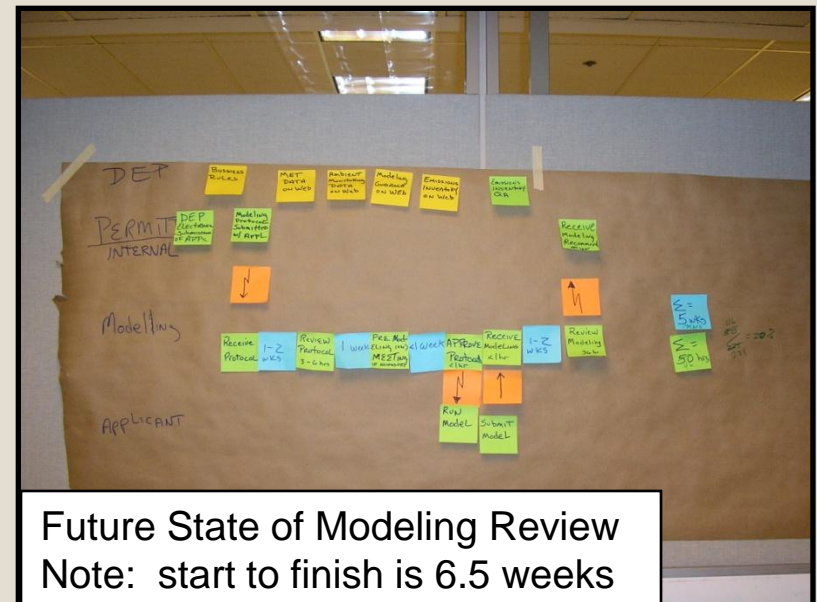


Future State of Modeling Review
Note: start to finish is 6.5 weeks

# More Lean Concepts to Know

- No Problems – Only Opportunities for Improvement

- Five Whys

- Spaghetti Diagram

- Standard Work

- Key Performance Indicators

# LEAN Projects to Date

- **LEAN I – June 2008**

  ➤ Evaluation of the Air Planning and Standards Division Permit Modeling Program

  ➤ Evaluation of the OLISP Structures, Dredging and Fill (SDF) Permit Application Review Process

  ➤ Evaluation of the Water Permitting and Enforcement Division's Enforcement Programs

# LEAN Projects to Date

- **LEAN II – October/December 2008**
  - ➤ Improvement in IWRD Permitting Processing Timeframes

  - ➤ Improvement in Solid Waste Enforcement Program

  - ➤ Evaluation of the Storage Tank Compliance Inspection Process

  - ➤ Improvement in Statewide Fish Distribution at Quinebaug Hatchery

# LEAN Projects to Date

- **LEAN III – February 2009**

  ➢ Transition from Teaching Boating Safety Education to Testing

  ➢ Improvements to the Requisition and Purchasing Workflow Process

  ➢ Evaluation of the Improvements to the Environmental Land Use Control (ELUR) Application Process
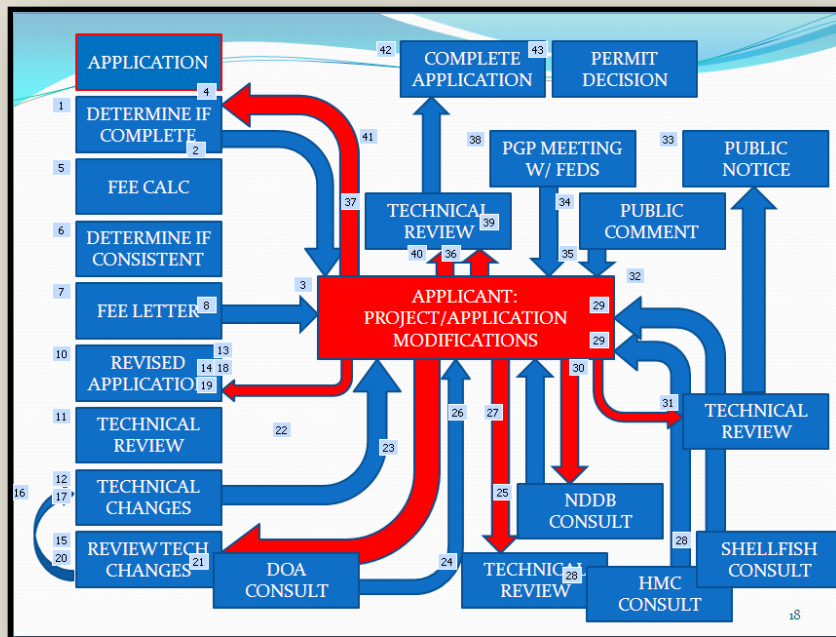
# LEAN Projects to Date

- **LEAN IV – May 2009**
  - ➢ NPDES Permit Processing Coordination

  - ➢ Clean Water Fund Agreements

  - ➢ Re-Evaluation of the Title V Major Source Inspection Process
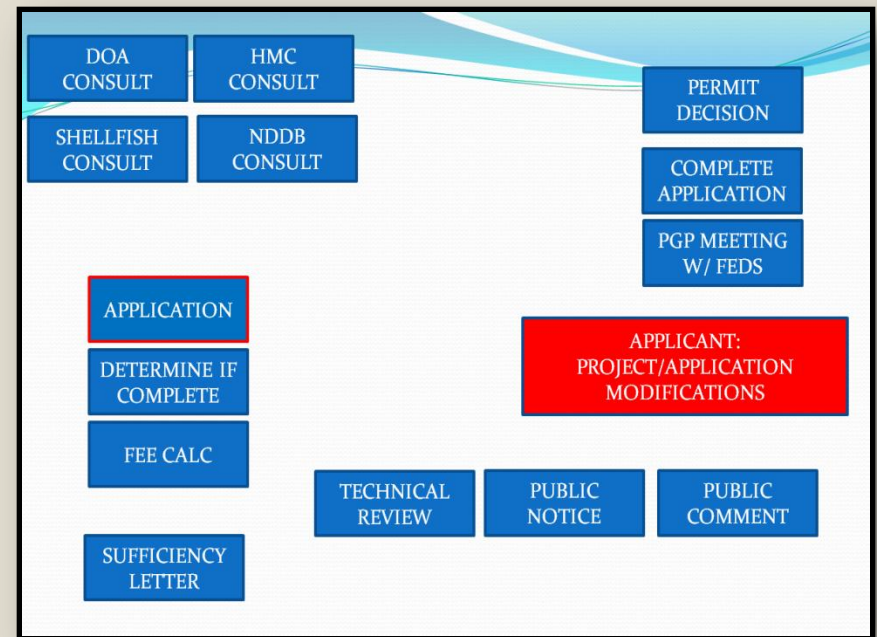
# Lean I – The Coastal Permitting Process

## Comparison

### Existing

### Proposed

# Lean I - Evaluation of the OLISP Structures, Dredging and Fill (SDF) Permit Application Review Process

## ❑ Value Stream Mapping

| Value Stream Mapping: The activities and steps, both value and non-value added, as shown in the Pre-Kaizen state versus Post-Kaizen desired state. | | |
|---|---|---|
| Type of Process | Pre-Kaizen – # of Processes | Post Kaizen – # of Processes |
| Valued Added | 38 | 38 |
| No Value Added but Necessary | n/a | n/a |
| No Value Added | n/a | n/a |
| Waiting | n/a | n/a |
| Transport | n/a | n/a |
| Total | 132 | 76 |
| *Percent Reduction in the Number of Total Steps = 58% Reduction* | | |

## ❑ Results

➢ Created new application forms and instructions
➢ Conducted outreach and training to local officials, to regulated community, and consultants
➢ Developed revised permit process
➢ Developed new notice of insufficiency

## ❑ Benefits

➢ More staff pre-application availability for assistance in planning & design
➢ Pre-application coordination with resource experts so no surprises late in process
➢ FAQs and guidance documents available on-line
➢ Expedient permit decisions
➢ No re-work, corrections

# Lean II

## Inland Water Resource Division

### The Swim Lane Approach Was Used to Map Out the Current Process
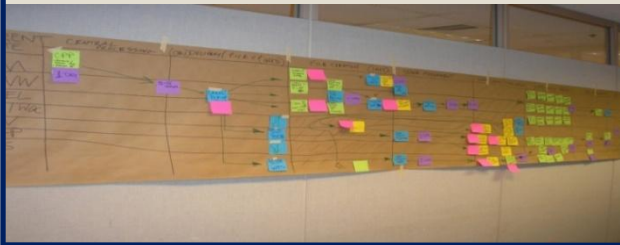
7 Lanes
Steps in the process = 57
Time to make a decision = 125 days to 210 days
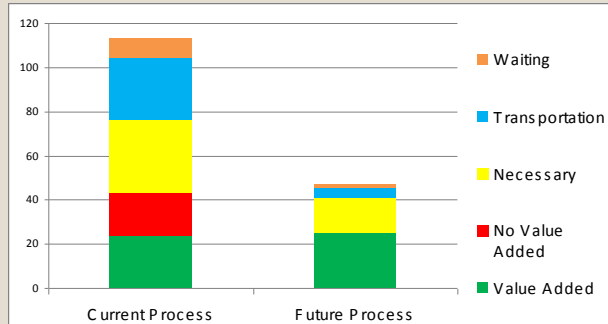Movement = 913 steps
**10** Individual databases



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*Transforming Tomorrow Today*

## Solid Waste Lean Project Team Charter

| Project Name: | *Improvement in Solid Waste Enforcement Program* | Dates:<br>Times:<br>Location: | October 6-10, 2008<br>8:30 – 4:30 PM<br>4th floor, 79 Elm St. |
|---|---|---|---|
| Training and Brainstorming Session: | Training, data collection, Value Stream Mapping<br>See agenda | Dates:<br>Times:<br>Location | See Agenda<br>4D |
| Daily Update Meetings: | Days 1, 2, 3, and 4<br>3:45 p.m. – 4:30 p.m.<br>See Agenda for locations | Final Presentation: | Day 5, October 10, 2008<br>2 p.m. – Phoenix Auditorium<br>3 p.m. Celebration – Rm. 4B |
| Champion (s): | *Nicole Lugli* | Team Leader: | *Darlene Sage* |

| 1 | Problem Statement: | Solid Waste Enforcement process has many steps between inspection and draft formal action being issued. We need to reduce processing times and inefficiencies so that staff are freed to undertake new initiatives in compliance and enforcement (such as improving recycling compliance and increasing inspection rate of permitted facilities). |
|---|---|---|
| 2 | Project Scope / Objectives: | 1) Conduct value stream mapping on portion of solid waste enforcement processes, specifically between inspection and decision to issue formal enforcement action; 2) Identify wastes; 3) Establish baseline measures for solid waste enforcement process; and 4) Recommend tracking system |
| 3 | Key Team members: | Frank Gagliardo (Supervisor), Darlene Sage, Bethany Dunbar, Stan Gormley, Gene MacGillis, Laurene McEntire (staff); Joseph Schiavone (WEED HazWaste Enforcement); Paula Guerrera (WEED Recycling); possibly someone from IT. |
| 4 | Goals: | 1) Minimize number or complexity of steps in the process between inspection and issuance of draft formal action to reduce average total processing time between these points to at least 30%<br>2) Recommend SOPs for updating or creating written documentation of process |

| Tools | | |
|---|---|---|
| | M | Charter Form |
| | M | Idea Tracking Chart (ITC) |
| | M | Progress Report |
| | M | Cost Reduction Form (Form 3) |
| | | Training Plan Form |
| | | Standard Combination Work Sheet |
| M = Mandatory Use | | Measurement Graphs / Improvement Suggestion Logs |
| R = Recommended Use | | Visual References and Controls (SOPs, PFD's, Shadow boards and boxes,) |
| NR= Not Required | | 6 S Survey |
| | | Spaghetti Diagram |
| | | Product Process Map |
| | | Standard Worksheet |
| | | Video Tape and / or Observe Set ups Set up Analysis Sheet (Min. of 7 Set-ups per week) |
| | | Time Observation Sheet |
| | | Value Stream Map |
| | | Product Mix Matrix |

# Lean II – Evaluation of the Storage Tank Compliance Inspection Process

## VSM – LEAN, MEAN, & GREEN
### 32% Increase Value-added



Legend:
- Waiting (orange)
- Transportation (blue)
- Necessary (yellow)
- No Value Added (red)
- Value Added (green)

X-axis: Current Process, Future Process

## Enforcement State

- 1500 INSPECTIONS
- SITES WITH 100% COMPLIANCE = 10
- 1490 SITES WITH A COMPLIANCE ISSUE
- 34 ENFORCEMENT ACTIONS ISSUED
  (FORMAL & NOVS)

## Enforcement Future State

- INCREASE FORMAL ACTIONS BY 40%
- 100+ SITES ISSUED FIELD NOVS

## Pre-Inspection

- **CURRENT STATE**
- **19 Steps**

- **FUTURE STATE**
- **3 Steps**

## Inspection

- **CURRENT STATE**
- **34 Steps**

- **FUTURE STATE**
- **35 Steps**

## Post - Inspection

- **CURRENT STATE**
- **65 Steps**
- **Total = 118**

- **FUTURE STATE**
- **9 Steps**
- **Total = 47**

## Key Performance Indicator (KPI)
### 40% Increase Inspection Efficiency and Quality



Legend:
- Compliance Staff (red)
- Enforcement (blue)

X-axis: Current, Future
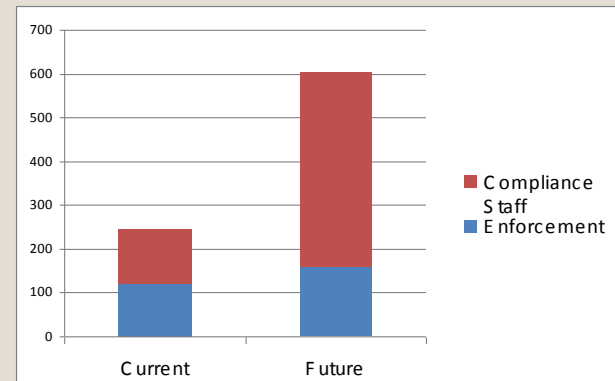
# Lean II – Fish Distribution

## Current State – Average Time Per Stop
## Bureau of Natural Resources – Fisheries Division
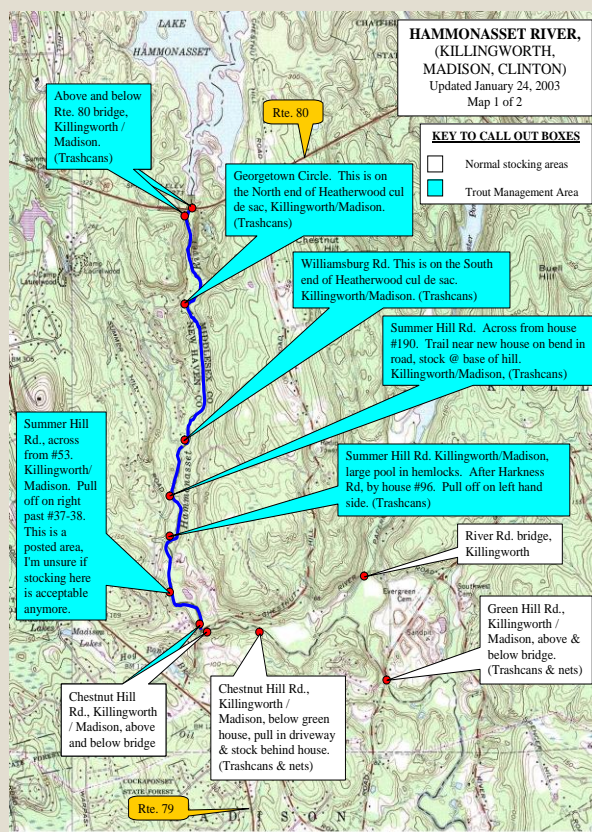


- **Approximately 15 minutes per stop (.25 Hours/Stop)**
- **Average of 3 People per stop to support drops**
- **So each stop takes approximately .75 Man hours per stop**
- **Average Stops per Run is 15**
- **Therefore average time to perform stops on a run 3.75 Hours (15 stops x .25 Hours)**
- **Goal is to reduce stops by 15% or 317 stops**

# Lean III – Boating Division

## Templates

# Acknowledgments/Contacts

- Commissioner Gina McCarthy
- Deputy Commissioner Amey Marrella
  424-3009, amey.marrella@ct.gov
- Deputy Commissioner Susan Frechette
  424-3005, susan.frechette@ct.gov
- Karen Caliendo, Agency Lean Coordinator
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